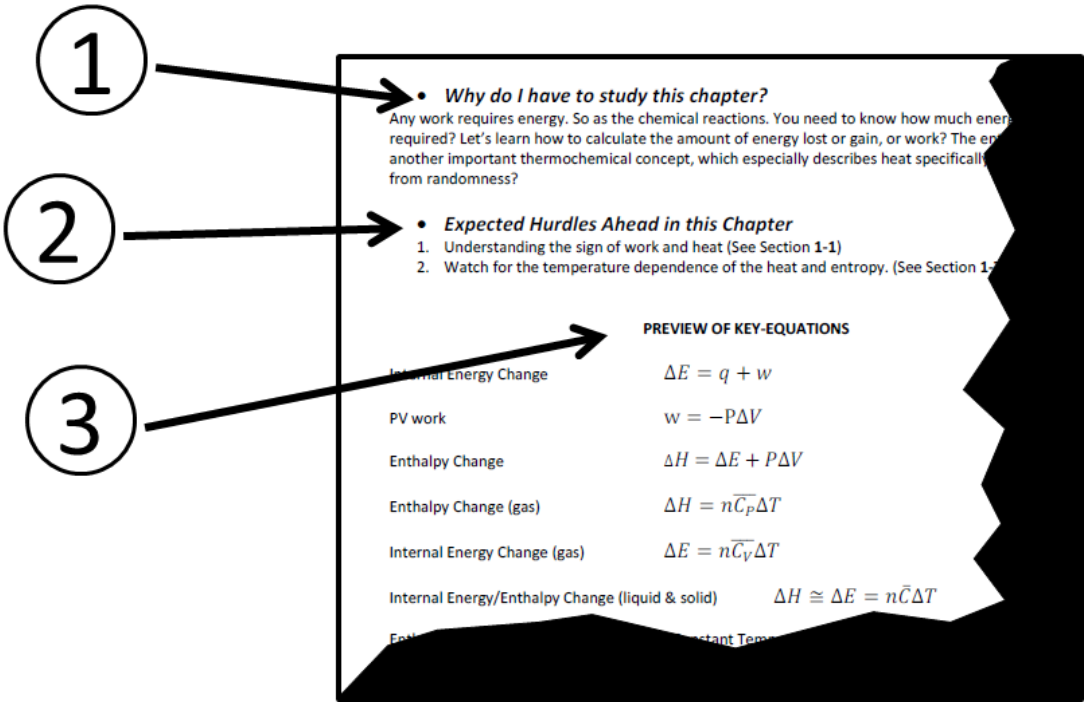
How to use this textbook.

In order for you to use this textbook effectively, please note there are some features in this textbook which I want you to note.

①Why do I have to study this chapter?
This paragraph explains the purpose of each chapter for you to study. I highly recommend you to read briefly especially when you are not familiar with particular topic you are studying.

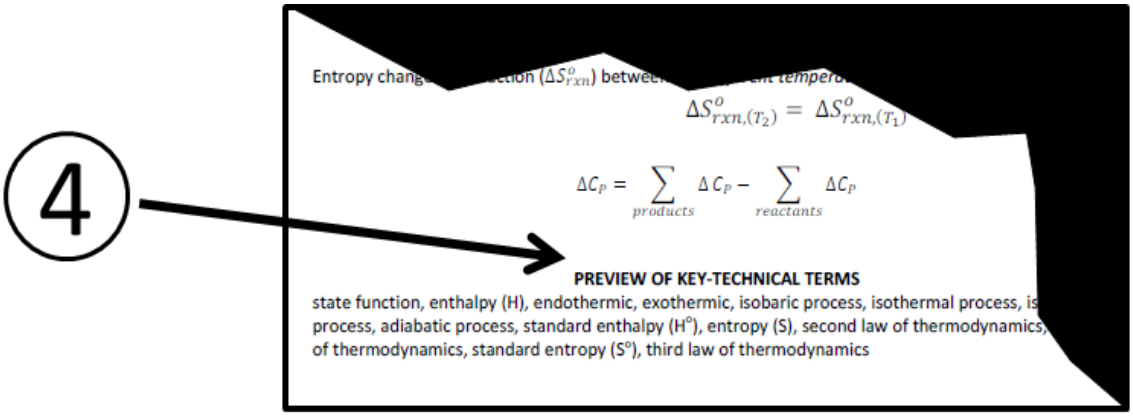
②Expected Hurdles Ahead in this Chapter
This paragraph gives you some warnings on the topics which may cause you some difficulties.

③PREVIEW OF KEY-EQUATIONS
This section lists up the equations showing up in each chapter. I am showing the equations before the chapter begin in order to get you familiar with the core equations which you are studying



④PREVIEW OF KEY-TECHNICAL TERMS

New and very important terms used in each chapter are listed for you to preview.



⑤EXERCISE

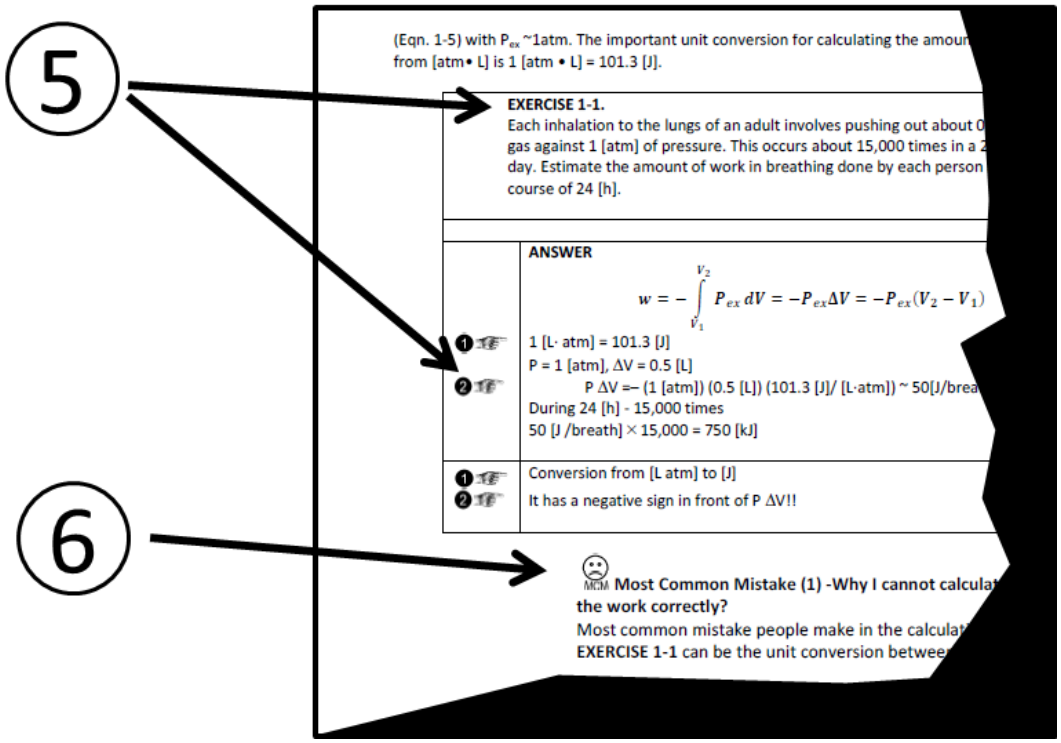
Selected exercise problem is listed and explained. It shows the example of how you want to approach it.

❶☞This sign in **EXERCISE** indicates the tricky part of the problem. It give some help for you to solve the problem correctly.

⑥Most Common Mistake

MCM **Most Common Mistake**

It lists the common mistake which students may commit when they solve the problems. Please review those items before you take the exam.



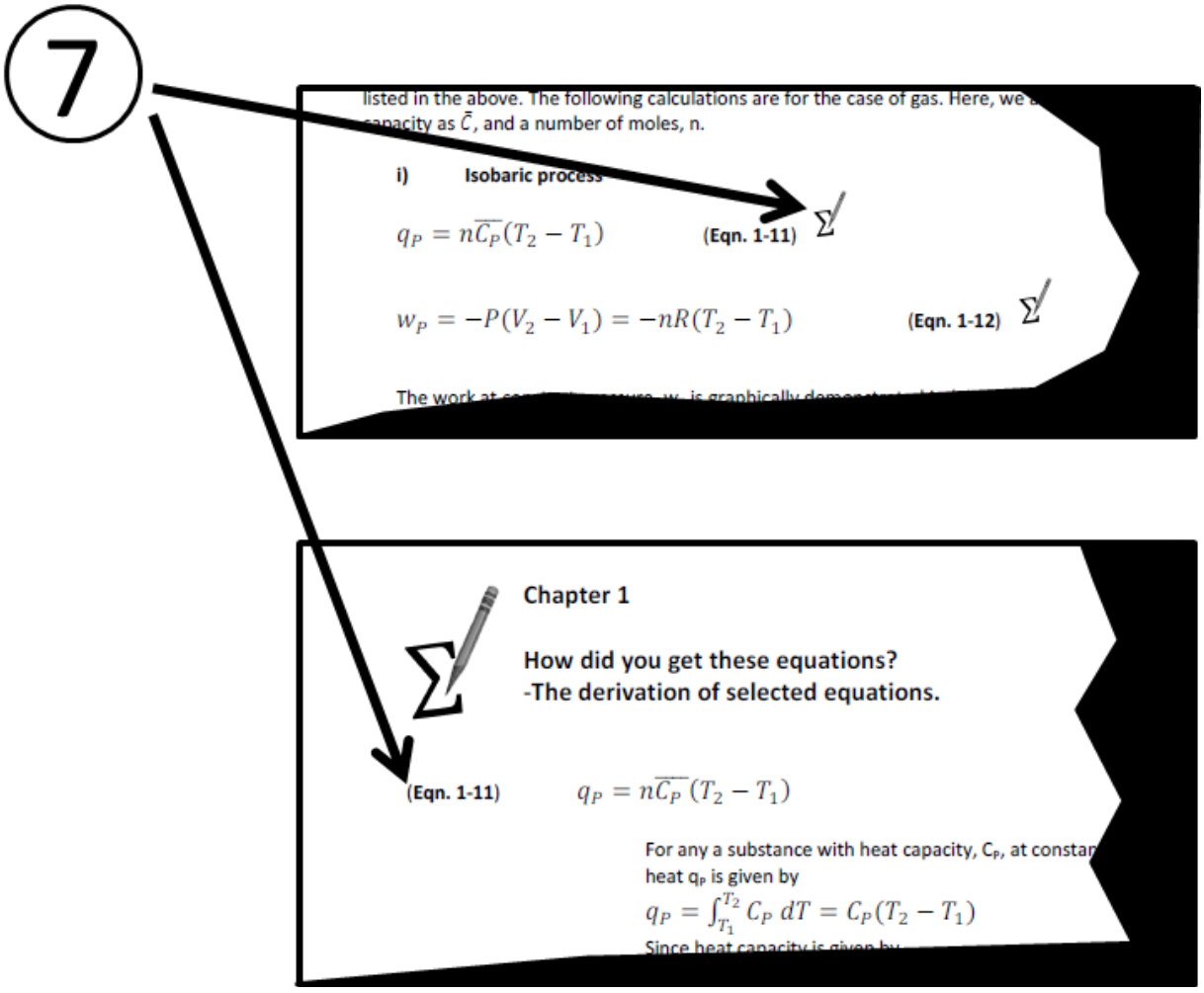
⑦Derivation of Formulas

Σ The formula with this mark have derivation at the later section of the chapter. This textbook is intended to give you the short cut of what to know or where to study. In order to focus on the problem solving, the equations or formulas needed for solving problems are given without derivations. Therefore important derivations are given in the later section.

How did you get these equations?-The derivation of selected equations.

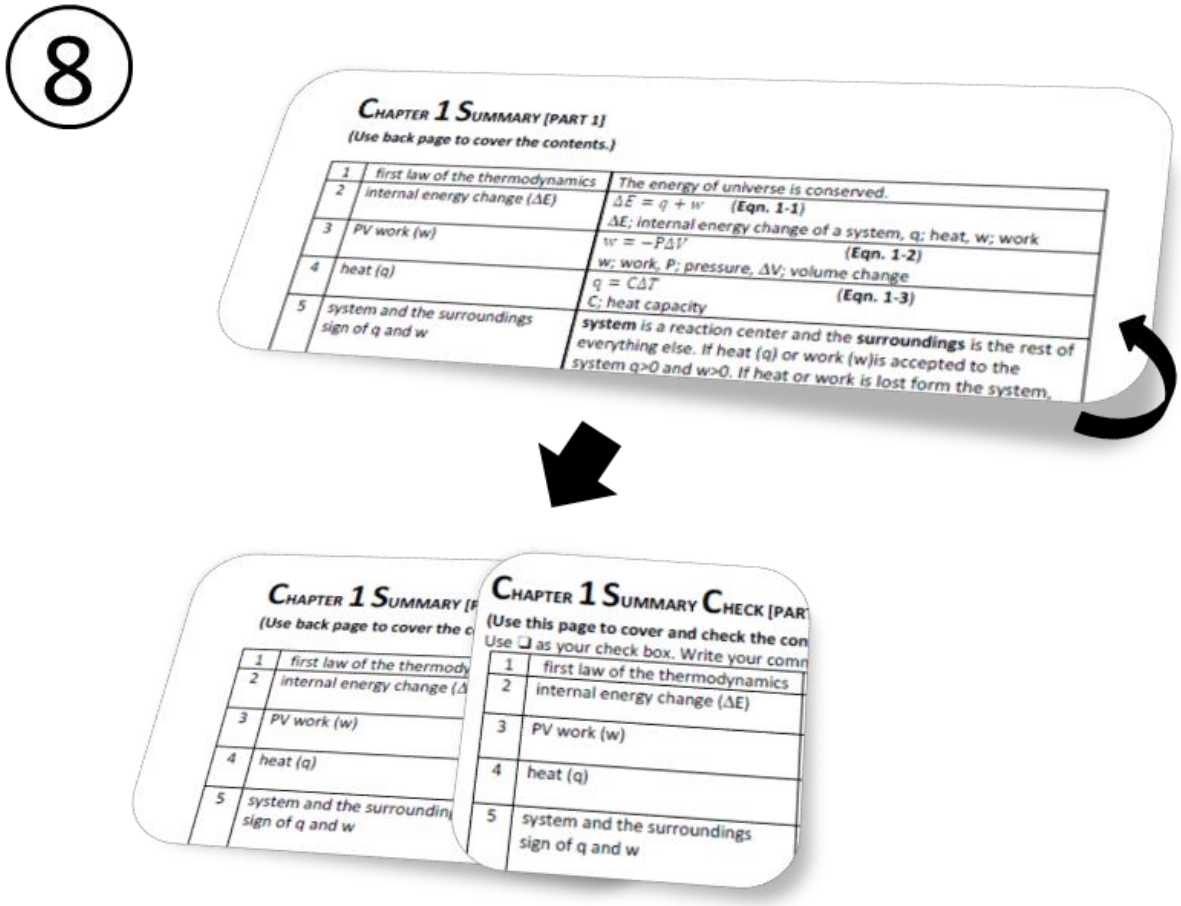
This section provides explanations on important formulas need significant steps for derivations.

The formula with Σ sign is treated in this section and the derivations are given.


7
listed in the above. The following calculations are for the case of gas. Here, we
capacity as $\bar{C}$, and a number of moles, n.
i) Isobaric process
$q_P = n\overline{C_P}(T_2 - T_1)$ (Eqn. 1-11)
$w_P = -P(V_2 - V_1) = -nR(T_2 - T_1)$ (Eqn. 1-12)
The work at
Chapter 1
How did you get these equations?
-The derivation of selected equations.
(Eqn. 1-11)
$q_P = n\overline{C_P}(T_2 - T_1)$
For any a substance with heat capacity, C_P, at constan
heat q_P is given by
$q_P = \int_{T_1}^{T_2} C_P\, dT = C_P(T_2 - T_1)$
Since heat capacity is given by

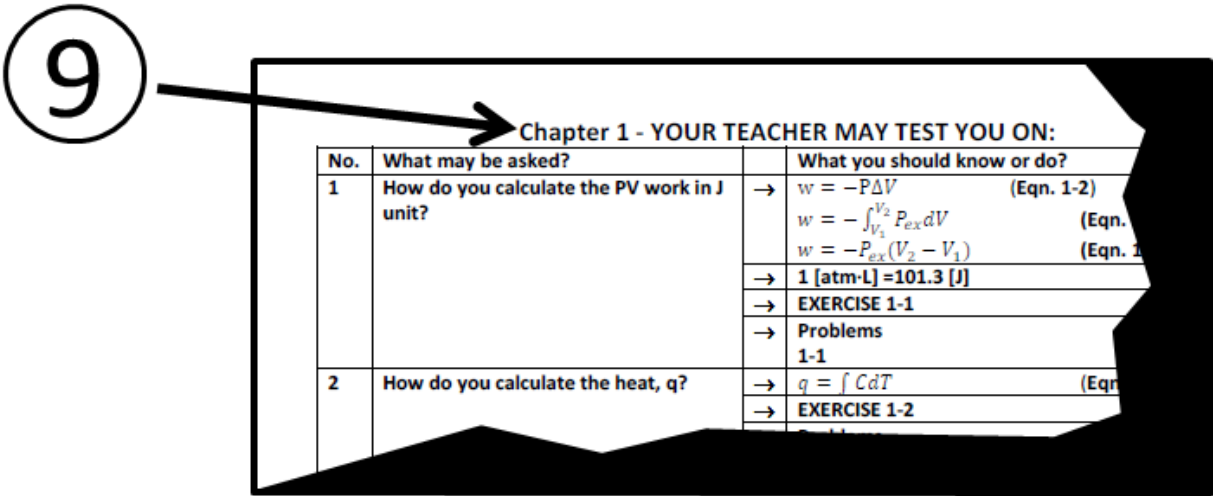
⑧Chapter Summary and Summary Check.

This page shows the table of the summary which can be used for exam review. It shows the item on the left and explanation on the right. This page is meant for you to use quick review for the exam. The summary check is page is for book keeping your summary process. You may want to hold the page to hide the previous page to hide the explanation, and practice for yourself to explain. If you feel comfortable, please check on box. ☐



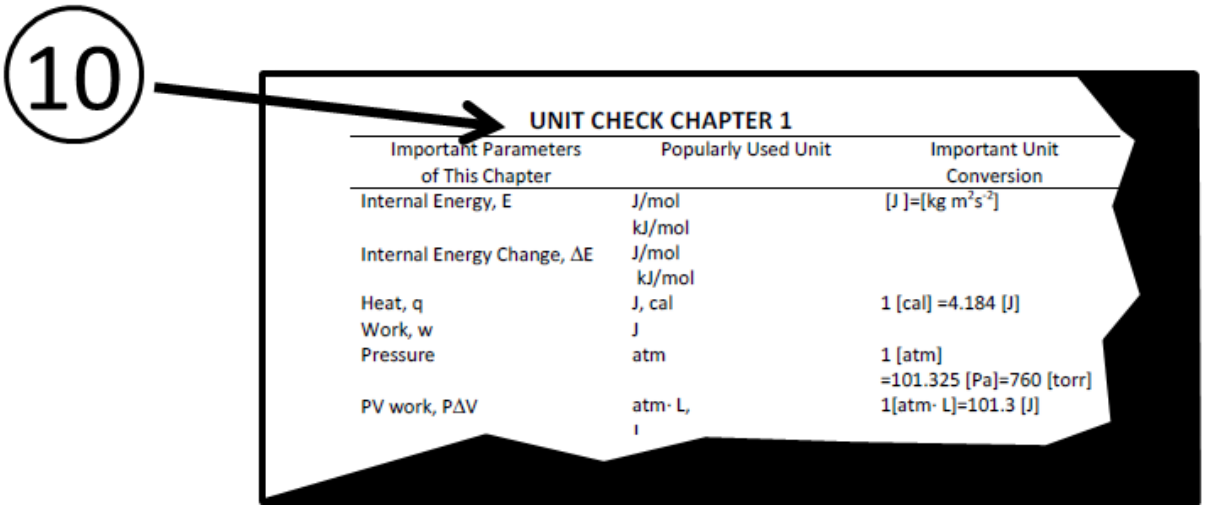
⑨ "Your Teacher May Test You On…"

This section lists up the topics which may be asked in the exam. The recommended EXERCISE and problems are also listed for each item. After you are done with reviewing summary, you may want to go through this section and practice more on your weak spots.



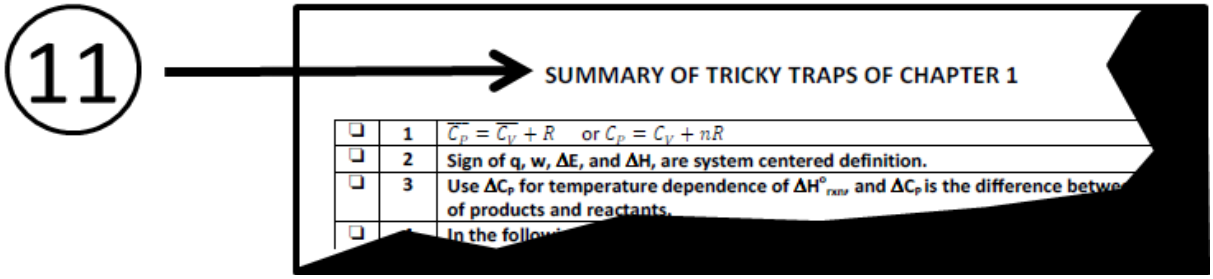
⑩Unit Check

Many troubles may take place in unit conversion or using wrong unit. This section sums up all terms used in each chapter sometimes with conversion factor or constant values.



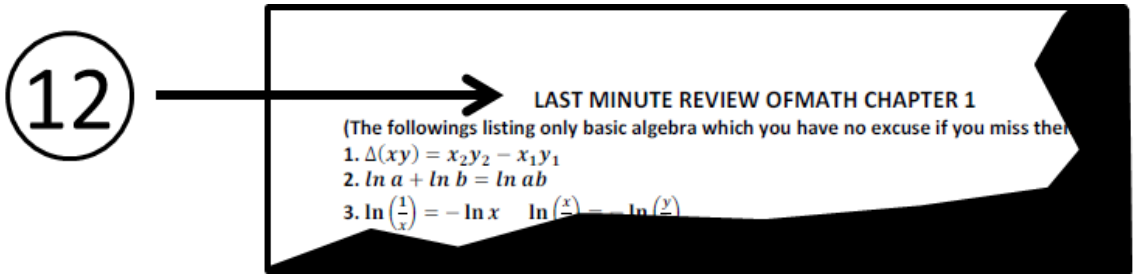
⑪ Summary of Tricky Traps

This section summarizes briefly on the tricky parts of each section. Use this section before you take exam.



⑫ Last Minute Review of Math

This section lists up really basic math which you probably do not have to worry about at all. However, I listed them up on purpose, since people seem to get panic before the exam and tend to forget about very simple thing. If you are getting nervous about exam, then take a look at this section at last minute and feel confident and comfortable. Then, take your exam.



Also the following features are added to each chapter:

Nobel Prize and Your Knowledge From Chapter 1

I want you to connect your knowledge of each chapter with scientific achievement recognized by Nobel prize. The contents are focused more to Physical and Biochemical applications.

The focused physical chemistry experimental approach associated with each chapter:

This section adds up advanced experimental technique to what you learned in each chapter. This section can be skipped if you have too much to worry about your study. However, please take a look at one or two sections, you may find them very interesting.

End of Chapter Problems

The related and similar problems with EXERCISE or additional drills on calculations are given. The section "**Your Teacher May Test You On**" suggest you which question you should do for your review. The detail answers for the problem are available separately.

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